

# Remembering Muhammad

## *Perspectives from Memory Science*

In the previous chapters we have been concerned primarily with identifying the historical conditions in which the Qur'an gradually developed into the now canonical and invariable form of the text that has come down to us. As we have seen, this achievement was most likely the result of efforts to produce a standard Qur'anic text initiated by the caliph 'Abd al-Malik and his viceroy al-Ḥajjāj around the turn of the eighth century. Yet the Qur'an obviously had a history before it was finally fixed in writing to serve as a new sacred text for Muhammad's followers. Almost a century, then, it would seem, elapsed between the time when Muhammad first began to share what he believed to be divine revelations with the people of Mecca and the subsequent establishment of a definitive and authoritative written version of his teachings in the imperial Qur'an. Yet, even if we follow the traditional Nöldekean-Schwallian narrative, we must still reckon with the oral transmission of Muhammad's teachings largely from memory for a period of at least two decades. This means that in order to understand the circumstances of the Qur'an's origins we must fully engage the findings of modern memory science and the study of oral cultures. Already in the first chapter, we noted briefly some of the issues of memory and orality as they bear on the early transmission of the Qur'an; in the next two chapters, we will consider these topics in much greater depth.

Accordingly, in this chapter and in the following one, we will move away a little from our focus on the Qur'an and the seventh century. Nevertheless, we do so in order to better comprehend the essential realities that memory science and anthropology bring to bear for understanding the Qur'an's transmission from Muhammad to the final composition of its canonical form around the turn of the eighth century. The present chapter focuses on issues specific to the nature and function of human memory, as determined by over a century of scientific study of the memory's capacities and limitations. This rapidly expanding field has brought

remarkable new insight not only into understanding just how the memory works; it has also discovered that our memories operate with very high levels of fragmentation and fallibility. Indeed, over a very short period of time, amounting to no more than days or even hours, our reminiscence of an experience becomes significantly degraded in its quality and accuracy. On the whole, our memories turn out to be surprisingly inaccurate, particularly in the absence of any written record, to a much greater degree than we would generally care to admit. That is not to say that memory is completely unreliable—far from it. Despite its limitations, human memory generally functions very efficiently for the various things that we need it for from day to day. Indeed, without a certain level of reliability in our memories, it would be difficult to function individually or collectively in a complex society. But that should not lead us to overlook just how much and how frequently we misremember and forget in the process, in both personal and collective memory. Indeed, scientists have identified such regular forgetting and re-remembering as essential “adaptive properties” of memory, which make memory of more practical use for individuals and societies.<sup>1</sup>

Not surprisingly, the profound limitations and inaccuracies of the human memory as revealed by these scientific studies have so far not been a welcome partner in the study of the Qur'an's origins. This omission poses a substantial problem, since many, if not most, specialists on early Islam and the Qur'an remain unyielding in their insistence that the words of the Qur'an should be identified exactly with Muhammad's preaching in Mecca and Medina, as if the text were simply a transcript of what Muhammad said. Nevertheless, absent the fixation of the text in writing as Muhammad was teaching or under his supervision, as some admittedly would presume, the assumption that the Qur'an relates Muhammad's words as he said them strains belief. Some scholars would appeal to the remarkable capacity of preliterate peoples, and the Arabs especially, to remember oral teaching with incredible accuracy—a topic we will address in the following chapter. Nevertheless, scientific investigation of human memory over the last century and a half has demonstrated time and again that this is simply not true, no matter how ardently some scholars may choose to believe it. Accordingly, scholarly study of the Qur'an must recognize that if we are at all dependent on human memory for our knowledge of the Qur'an, in the absence of a written version produced in part by Muhammad himself, very little of the Qur'an is in fact likely to be the actual words of Muhammad.

#### MEMORY LOSS AND RECONSTRUCTION

The capacities and limitations of individual memory, as they have now been identified by modern scientific study, should be fundamental to any subsequent investigations of the Qur'an's history. Above all, we must consider the significance of these findings for understanding the quality of the memories that Muhammad's

earliest followers would have retained and then reproduced for later generations. These memories, as they formed in the minds of Muhammad's companions, are, rather obviously, the historical bedrock on which all subsequent memories of his deeds and teaching stand. Therefore, it is essential to determine just how much we can rely on the accuracy of these initial memories of Muhammad. These memories form the baseline of whatever historical knowledge we could possibly hope to recover about Muhammad, his religious community, and his teachings. Thus, as David Rubin rather obviously notes,

When the recall of one person is the initial stimulus for that of another, the first person's recall is all that is transmitted of the original; there is no chance for a new context to recover information that was known by the first person, but was not told. The recall of the second person will be a product of the recall of the first person, the biases or style of the second person, and the conditions of the second person's recall.<sup>2</sup>

Therefore, the closest that we can possibly come to understanding Muhammad as a historical figure and his teachings depends entirely on the quality of the memories of his earliest followers. Unfortunately, the nature of human memory and its workings as revealed by memory science do not offer much cause for optimism in this case. The weaknesses of the human memory lead us instead to the conclusion that already in this first generation of remembering a great deal of information and detail would have become lost or corrupted, even in a very short span of only a few days or hours.

The scientific study of human memory began with the field-defining work of a German psychologist named Hermann Ebbinghaus (1850–1909), who commenced his career by studying himself and his own memory. His initial experiments consisted of preparing a series of nonsense syllables, such as DAX, GUF, and NOK, which he would regularly memorize and rememorize. Then he would test his memory of these invented syllables at a variety of intervals after committing them to memory, in an effort to determine just how long the memory could contain accurate information and how quickly it would forget or alter this information. The drop-off turned out to be quite rapid: testing himself only nine hours after memorizing the syllables, he had forgotten around 60 percent of the sequence. Thereafter, the decay became much slower. After sixth months, he had forgotten a little over 75 percent of the original string of syllables: “not that much worse,” as memory expert Daniel Schacter observes, “than the amount of forgetting at the nine-hour delay.” Ebbinghaus's important discovery, “that most forgetting occurs during early delays, and then slows down at later ones, has been replicated in countless laboratory experiments.”<sup>3</sup> Accordingly, his findings, known as the Ebbinghaus forgetting curve, have become a foundation of modern memory studies, which have determined that our memory loses an enormous amount of information very quickly after the events we seek to remember,

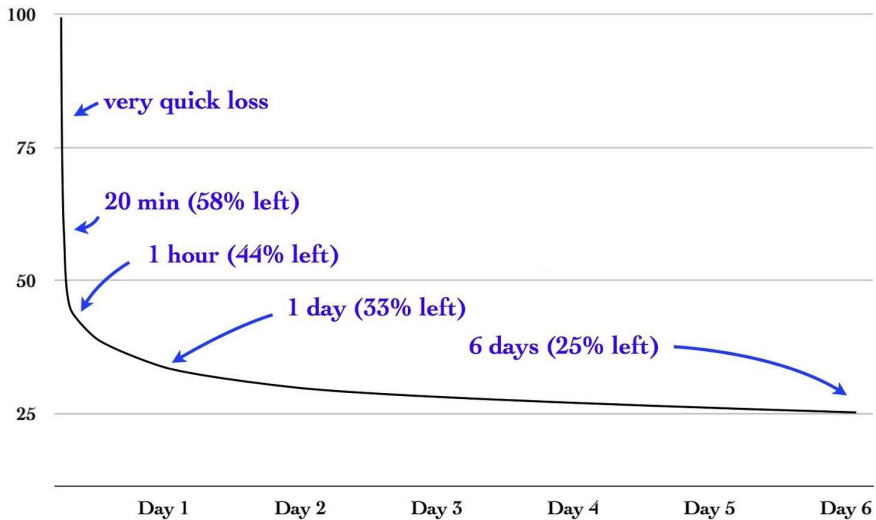


FIGURE 4. Ebbinghaus's Forgetting Curve.

within a matter of mere hours. Most of what we forget, then, happens almost immediately after the event that one later seeks to remember—more than half of what we might try to recall about a given morning is wrong or forgotten by dinnertime. The extension of the curve, however, indicates that a small core of memories that we have developed about an event after the first several hours can persist in approximately the same form for a significant amount of time thereafter. Nevertheless, these enduring memories generally recall only around 25 percent of the original events with any sort of accuracy. The rest is simply lost or replaced by erroneous recollections.<sup>4</sup>

The effect of the Ebbinghaus curve was soon studied beyond the laboratory and in the circumstances of everyday life. The results demonstrated that such rapid transience limits our ability to accurately recall even the recent past no less in our day-to-day affairs than for subjects in the lab.<sup>5</sup> Schacter helpfully summarizes the significance of these studies for understanding how our memories work as follows:

With the passing of time, the particulars [of a memory] fade and opportunities multiply for interference—generated by later, similar experiences—to blur our recollections. We thus rely ever more on our memories for the gist of what happened, or what usually happens, and attempt to reconstruct the details by inference and even sheer guesswork. Transience involves a gradual switch from reproductive and specific recollections to reconstructive and more general descriptions.

The result, he continues, is that “when attempting to reconstruct past events based on general knowledge of what usually happens, we become especially vulnerable

to the sin of bias: when present knowledge and beliefs seep into our memories of past events.”<sup>6</sup> This means that it does not require years or decades or even centuries for memories to become distorted. Significant forgetting and alteration set in within mere hours or a couple of days. This should give us great pause in considering the reliability of the various memories of Muhammad, his teachings, and the formation of his religious community that have come down to us. From hour to hour and day to day, memories of what had happened would have shifted significantly in the absence of their commitment to writing.

The next great pioneer of memory studies was Frederic C. Bartlett, Cambridge University’s first professor of psychology, and his early works, together with those of Ebbinghaus, laid the foundations of modern memory science.<sup>7</sup> One of Bartlett’s most significant contributions was to identify the basic process that our memories use to recall events from the past. Too often we are prone to thinking of our memories as simply recording devices or cameras that capture individual moments as we experience them and compile them into discrete files. These memory files are then stored away somewhere on the vast hard drive of the mind, to be recalled from storage at will, like some sort of repository of personal PDFs from the past. Yet it turns out that the brain does not work this way at all, as Bartlett’s research discovered. As he writes, “The first notion to get rid of is that memory is primarily or literally reduplicative, or reproductive. In a world of constantly changing environment, literal recall is extraordinarily unimportant.” That is, there is little practical value in being able to recall past experience with meticulous accuracy, and so our brains have adapted to forget a lot of needless detail. As Bartlett continues, “if we consider evidence rather than presupposition, remembering appears to be far more decisively an affair of construction rather than one of mere reproduction.”<sup>8</sup> When we experience something, Bartlett’s studies demonstrated, bits and pieces of the memory are broken up and stored separately in different parts of the brain. When we then later seek to remember something, the brain must assemble the various fragments of the memory in question from the different storage locations.

When we attempt to recall some past event, however, it turns out that some of the pieces of a memory—more often than not a lot of the pieces—are no longer there, and so in order to complete the memory for retrieval, the brain must fill in the missing gaps, using similar memory fragments drawn from comparable experiences in our past. Using this supplementary data, the mind effectively pieces the memory back together to fit the way that we have come to expect things. In the process, bits from other memories associated with similar emotional states or sharing a similar visual pattern or having similar semantic associations can come along for the ride, conflating various memories into a new, altered recollection. Thus, Bartlett concludes,

Remembering is not the re-excitation of innumerable fixed, lifeless and fragmentary traces. It is an imaginative reconstruction, or construction, built out of the relation

of our attitude towards a whole active mass of organised past reactions or experience, and to a little outstanding detail which commonly appears in image or in language form. It is thus hardly ever really exact, even in the most rudimentary cases of rote recapitulation, and it is not at all important that it should be so.<sup>9</sup>

Bartlett discovered these qualities of our memories by developing a new approach, different from the one established by Ebbinghaus, which dominated memory studies up through the 1960s: indeed, it was only in the 1970s that Bartlett's approach began to become influential in memory science.<sup>10</sup> As Bartlett progressed in his research, which initially followed the conventional pattern of Ebbinghaus's earlier work, he grew dissatisfied with the reigning paradigm's focus on the repetition of nonsense syllables. Instead, he decided to design experiments that used meaningful materials more reflective of the things that our memories encounter and remember from everyday life.<sup>11</sup> In his most famous memory experiment, he asked his subjects to read twice a short Native American folktale known as the "War of the Ghosts," a brief narrative of about three hundred words that would have been previously unknown and unfamiliar to the participants.<sup>12</sup> Bartlett then asked the subjects to recall the story later on after various intervals of time had elapsed. Fifteen minutes after their initial reading, the participants were asked to write down the story they had read, and then subsequent recall tests were administered at intervals of a few hours, days, weeks, months, and years thereafter. What he found in their repeated reminiscences led to the discovery of the constructive nature of our memories.

Bartlett discovered that even in the first reproduction, after only fifteen minutes, his participants showed a significant number of major and minor distortions in their memories of what they had read. Even more changes had been introduced by the second reproduction. Subsequent recall, of course, did not improve the accuracy of their memories, although Bartlett found that a particular structural form of the memory, what we might call its "gist," had developed in the memories of the various individuals. That is to say, the narrative quickly took a fairly fixed form, unique to that individual, that would serve as the basis for all subsequent recollections. This mnemonic structure was not especially accurate, however, and very soon after reading the narrative, significant details vanished or were replaced with new information. Most often, the added information was drawn from the subjects' culture, Edwardian England, which allowed them to construct a version of the memory that made more sense and had more relevance in their own context. The overall style of the story and its verbiage were quickly lost and replaced by new formations produced by the memories of different individuals, and there was also a persistent tendency to abbreviate.

The results thus revealed that although there were bits and pieces of memory that were in fact taken from the story, when recalled, these had to be massively reconstructed by filling in significant gaps with supplementary details and

vocabulary not actually taken from the text itself. As time went by, memories of the actual text continued to degrade even further, so that little beyond the basic structure that had formed in the initial reminiscences, which themselves were not entirely accurate, could be consistently recalled. The results clearly demonstrated, as Bartlett concluded, that after only a few months, “narrative recall consists mostly of false-memory reports,” a finding that has been verified by subsequent replications of his experiments. In some cases, subjects would incorrectly reproduce a text even when they were allowed visual contact with the written source!<sup>13</sup> The significance of Bartlett’s discoveries for our purposes is clear: our memories of what we experience, and in this case, of textual material especially, degrade very rapidly. Within only fifteen minutes, our memories introduce a high number of distortions, many of which are significant, to our recollections. The results therefore offer conclusive confirmation of the Ebbinghaus forgetting curve that was obtained using a slightly different method. This initial degradation only worsens over time, as one would expect, so that within a few months our memories of an event or a text will consist primarily of false memories that recall the original experience—or words—with a high degree of inaccuracy. Accordingly, we must recognize that any memories of what Muhammad said or did by his earliest followers would have likewise been subject to the same process of rapid distortion and decay—within mere minutes of the experience and becoming significantly worse after just a couple of months.

No less problematic (indeed, perhaps even more so) are Bartlett’s related studies of what he called “serial reproduction”—that is, the function of memory when someone relates a memory of her or his personal observations to another person, who in turn relates the memory to another, and so on.<sup>14</sup> Bartlett based his experiments on very short texts, which should have been easy to recall and transmit. What he discovered was that memory of the original material became more and more distorted with each additional transmission, in light of which he concluded that it is

perfectly clear that serial reproduction normally brings about startling and radical alterations in the material dealt with. Epithets are changed into their opposites; incidents and events are transposed; names and numbers rarely survive intact for more than a few reproductions; opinions and conclusions are reversed—nearly every possible variation seems as if it can take place, even in a relatively short series. . . . In fact, the one overwhelming impression produced by this more “realistic” type of memory experiment is that human remembering is normally exceedingly subject to error.<sup>15</sup>

We will have much more to say about the highly distorting impact of oral transmission on a tradition in the following chapter. Nevertheless, for the moment we should perhaps consider the fact that the subjects for Bartlett’s experiments with memory were students at Cambridge: one imagines that individuals lacking the same intellectual training and mental discipline as these students had would hardly perform any better.

As Bart Ehrman rightly notes of these issues, we must consider these limitations of the memory as we try to understand how figures from the past, like Jesus or Muhammad, were remembered by those who knew them.

People's perceptions will necessarily be partial (you simply can't observe everything) or in error (you misperceive some things); what they store in memory will be partial and sometimes in error, as will be what they construct when trying to retrieve the memory. If they tell and retell what they experienced soon after the event and frequently thereafter, their first recollection will tend to be how they tell it every time. If they do not tell it for a while, and retell it only infrequently, every retelling may be different.<sup>16</sup>

Given these issues with the function of human memory, then, Ehrman rightly asks in regard to the Jesus tradition,

What, one might wonder, would happen to serial reproductions of, say, sermons of Jesus, or accounts of his life? One should not urge that these would not change much given the presence of eyewitnesses to guarantee their accuracy. . . . Nor should anyone think that a predominantly "oral culture" such as found in the early Roman Empire would effectively preserve traditions without changing them.<sup>17</sup>

We will take up this point again in the next chapter. The very nature of human memory and its transmission all but ensures that such recollections would be, to quote Bartlett, "exceedingly subject to error," errors that would have arisen almost immediately in the memories of Muhammad's followers. If we add to these limitations of memory the regularly terse, confusing, elliptic, and even downright nonsensical style of the Qur'an's words, it seems ludicrous to imagine that Muhammad's companions could have remembered them accurately. These qualities certainly do not lend themselves to any possibility of verbatim memorization and recall in the absence of a written document. Indeed, people today are able to memorize the Qur'an verbatim only *because* it has become a written document.

#### EYEWITNESS MEMORY

The quotation from Ehrman above also introduces another important issue in the scientific study of human memory—namely, the reliability of eyewitness testimony and its value for remembering past events. Eyewitness memory is a topic that often arises in considerations about our historical knowledge of the origins of a religious tradition, including the beginnings of Islam no less than those of earliest Christianity. In both cases one frequently meets with appeals, often made particularly by religious believers, to the supposed accuracy of eyewitness testimony as a means of validating reports from the past about Jesus or Muhammad. For instance, Evangelical and other conservative Christians will regularly invoke the reliability of eyewitness testimony in efforts to shore up the historical reliability



and accuracy of the memories of Jesus in the canonical Christian gospels. The claim advanced by these individuals, who generally are committed in advance to the authority of the biblical text, is that since these gospels were written by actual eyewitnesses who were Jesus's followers, then they must record with a high degree of verisimilitude what he actually taught and did.<sup>18</sup>

Nevertheless, the truth of the matter is that eyewitness testimony is, like other sorts of memory, highly unreliable. As much was known already thousands of years ago by Thucydides, who observed: "Different eyewitnesses give different accounts of the same events, speaking out of partiality for one side or the other or else from imperfect memories."<sup>19</sup> Yet, although eyewitness testimony continues to be especially valued, no less for the historian than for a judge and jury, it is at the same time surprisingly undependable—much more so than most people would think. In the past few decades, psychologists and cognitive neuroscientists have brought intense scrutiny to bear on the reliability of eyewitness memories, particularly in light of the significance that eyewitness testimony traditionally has held in legal proceedings.<sup>20</sup> This research in the legal field has now unearthed a very troubling problem: although eyewitness testimony has been one of the most important types of evidence in a criminal proceeding, it is nonetheless highly "disturbing that such testimony is often inaccurate or even entirely wrong."<sup>21</sup> The same would be true, one has every reason to suspect, for the eyewitness memories of Muhammad's companions, no less so than for the followers of Jesus.

One of the earliest experiments involving this sort of memory was conducted well over a century ago, in 1902, by a famous German legal scholar, Franz von Liszt. One day, while von Liszt was giving a lecture about a particular book, a student suddenly shouted out in the hall, "I wanted to throw light on the matter from the standpoint of Christian morality!" to which another student immediately responded, "I cannot stand that!" The verbal confrontation between the two quickly escalated until the first student drew a revolver. Von Liszt then stepped in and grabbed the student holding the weapon by the arm, at which point the gun went off. The class erupted in a tumult, but when von Liszt restored order, he explained to the class that they had just become part of an experiment in memory. He then instructed a part of the students to write down what they had seen immediately. Another group wrote down their memories the next day, and another group did so after a week. Finally, one last group was deposed and asked to give their memories under cross examination. Since the event had been carefully scripted in advance by the three actors, they identified a number of specific events from the scene that were to be sought in the student reports. It turns out that no single student was able to remember the event accurately. The single best report, taken immediately, recalled 26 percent of the events incorrectly, while the worst had erroneous memories of 80 percent of what they had witnessed.<sup>22</sup>

A fundamental problem with eyewitness testimony is that eyewitnesses very often develop false memories of what they believe they witnessed. Eyewitnesses regularly come to believe with conviction that they saw something with their

own eyes or heard something with their own ears that is patently false. For this reason, such testimony, long a bedrock of criminal proceedings, has now come under considerable suspicion: false memories have often led to false convictions with devastating consequences. These deep-seated problems with eyewitness testimony and false memories first came to light through a series of criminal cases in the United States involving accusations of sexual abuse, especially at day care centers, remembered much later in life by adults who believed themselves to have been victimized. The sudden proliferation of these cases prompted many to wonder if such abuse had in fact been so disturbingly widespread or if, alternatively, there was some issue with the supposed eyewitness memories of the victims that was driving the rise in accusations. It turned out to be the latter, and while some of the accusers, to be sure, may have truly been victims, in most cases these memories of abuse had been unconsciously implanted in the alleged victims during the process of therapy.<sup>23</sup> Yet the failure of eyewitness memory is, unfortunately, not limited to these specific circumstances alone: indeed, anthropologists have verified the phenomenon broadly among different cultures and in a range of circumstances.<sup>24</sup> And, as further studies of eyewitness testimony have found such memories to be less and less reliable, an extremely troubling number of false convictions on the basis of eyewitness testimony has steadily emerged.

The scholarly literature on this topic has become vast, since, as it turns out, the phenomenon of developing false eyewitness memories that are believed with absolute conviction is very common, and “once activated, the manufactured memories are indistinguishable from factual memories.”<sup>25</sup> Therapy is of course not the only mechanism by which false memories can be implanted, and any number of different vectors can contaminate our memories of personal experiences. For instance, we may hear false information from someone else about a past event, even one from our own personal history, and it will subsequently become part of our memory of the event, even though it is entirely false. Alternatively, more recent experiences and the memories they produce can alter and distort other memories of things that we have witnessed in the past. As Bartlett was the first to demonstrate, it is in the very nature of remembering to produce memories that are syntheses of various individual experiences. Likewise, our current beliefs, particularly if they have changed significantly from the past, can also introduce false memories, so that we remember who we were and what we did in the past in a way that comports with what we believe to be true in the present. “Surely it must have been like this” soon becomes in the memory “It was so.”<sup>26</sup> No matter how hard we may try, our memories are prone to changing our recollections of the past, without our explicit permission to do so: it is a pervasive and persistent quality of human memory. Yet frustrating though this may be, it is, once again, as many experts have concluded, a helpful adaptive feature that makes our memories more relevant and useful in our day-to-day lives in the present.<sup>27</sup>

Many readers will no doubt be able to recall instances where individuals—or perhaps they themselves!—have been embarrassingly led astray by such a false

memory. One can identify, for instance, any number of public figures who in the recent past have fallen victim to false memories, as accounts of dramatic events from their personal histories have been shown to contradict the clear indication of more durable records. There was, for instance, Hillary Clinton's memory of landing under sniper fire in Bosnia in 1996, which became a flashpoint in the 2008 US presidential election and again in 2016, since video of her arrival in Bosnia with her daughter showed that nothing could be further from the truth.<sup>28</sup> Her account was widely viewed as dishonest, when, to the contrary, it was simply a very public example of a false memory of an event that had developed in her personal memory, which she believed with conviction and repeated publicly with certainty, since she believed it to be true. Another equally dramatic example from the public sphere concerns Brian Williams, a prominent news broadcaster for the US network NBC. Williams frequently recalled for viewers during his broadcasts how his helicopter had come under fire while he was covering the Iraq war in 2003. Yet the soldiers who were with him told a very different story. Other questionable memories soon came to light concerning Williams's coverage of the hurricane Katrina disaster in New Orleans, and eventually Williams had to step down from his position as the anchor of NBC's nightly news. Yet Williams's unfortunate downfall was merely a consequence of having a relatively normal human memory. Although the discrepancy was scandalous in the moment, Williams's misfortunes have since had the very positive effect of bringing greater public attention to the fact that we all—entirely innocently—develop false memories about ourselves and our past actions even within the relatively short span of a decade or so.<sup>29</sup>

In addition to making such enhancements to actual memories from our past, some people will remember vividly and with conviction having experienced things that never happened at all, with no basis in reality. Perhaps the most notorious example is the many individuals who have detailed memories of being abducted by aliens, a phenomenon that seems to have emerged only since 1962, coinciding, not surprisingly, with the birth of space flight. In these cases, psychologists have determined that these invented memories arise from an imagined possibility that continues to be imagined vividly and frequently so that it eventually becomes a memory of something that never actually occurred.<sup>30</sup> For example, a famous experiment conducted at Wesleyan University has demonstrated this productive quality of the imagination. Several researchers at Wesleyan devised an experiment to determine if simply imagining an experience could lead to the production of an actual memory that the event took place. The psychologists took forty students to a variety of places around their campus and asked them either to perform a certain task, to imagine themselves performing a task, to observe someone else performing the task, or to imagine watching someone else performing the task. The tasks ranged from the altogether ordinary—looking up a word in the dictionary, for instance, to the highly bizarre—proposing marriage to a Pepsi machine. When the participants were interviewed two weeks later, the researchers “found

that imagining familiar or bizarre actions during a campus walk can lead to the subsequent false recollection of having performed these actions.”<sup>31</sup> Many similar experiments have subsequently verified their findings, that the invention of false memories through persistent imagination of an event is part of the regular functioning of human memory.<sup>32</sup>

On the other side of things, eyewitnesses will often fail completely to notice significant elements of an event if the details in question do not conform to what is expected in a given circumstance on the basis of previous memories. For instance, in another now famous experiment, which has been repeated many times, two psychologists showed a film, about one minute long, in which two groups of people, one wearing white, and the other black, passed a basketball back and forth. The researchers asked the participants to count the number of times that the group dressed in white passed the ball. About halfway through the short video, “a female student wearing a full-body gorilla suit walked into the scene, stopped in the middle of the players, faced the camera, thumped her chest, and then walked off, spending about nine seconds onscreen,” a period of time amounting to around 10 percent or so of the entire video.<sup>33</sup> The subjects were initially asked how many passes were made, and then they were asked if they saw anything unusual or anything other than the players, and then finally, if they noticed the gorilla. About half of the participants did not see the gorilla and responded with disbelief, insisting that they must have seen a different video, since they surely would not have missed that. But they did miss it, because they were instructed to focus exclusively on something else. If we are looking intently for one thing, and not at all expecting another, we often tend to miss the unexpected thing entirely. Likewise, if something is not important to us, then odds are good that we will not bother to remember it. As the famous psychologist Alfred Adler observed, “There are no ‘chance memories’: out of the incalculable number of impressions which meet an individual, he chooses to remember only those which he feels, however darkly, to have a bearing on his situation.”<sup>34</sup>

This fallibility of eyewitness memories is no less evident, one must also note, in the particular case of so-called “flashbulb” memories—that is “memories for the circumstances in which one first learned of a very surprising and consequential (or emotionally arousing) event.”<sup>35</sup> For instance, an individual may not remember the slightest thing about what he or she was doing on November 22, 1963. But, if you ask older Americans what they were doing when they learned that US President John F. Kennedy was assassinated, many people will profess vivid memories of that circumstance. Studies have determined that the high level of surprise, significance, and emotion associated with such events triggers the brain to store more details in a short span of time that it ordinarily would.<sup>36</sup> Yet, despite the uncharacteristically vivid and detailed nature of such memories, this by no means ensures their accuracy. To the contrary, such flashbulb memories are no less subject to the vagaries of human memory than other more ordinary memories. Although some readers

will perhaps ardently wish to dispute this claim, particularly when it comes to their own memories, it has repeatedly been shown to be true.

The classic study to first demonstrate the fallibility of flashbulb memories was a study undertaken by two psychologists in the 1980s following the explosion of the US space shuttle *Challenger* on January 28, 1986. The day after this tragedy, the researchers asked 106 students in an Emory University psychology class to complete a questionnaire regarding the specific circumstances they were in when they first heard the news. The researchers followed up with about half of these students after eighteen months, and then again after two years. Perhaps the most startling result of this study is that 75 percent of the students who were given follow questions a year and a half later were absolutely certain they had never answered the questionnaire in the first place—and yet clearly, they had. Twenty-five percent of the students answered every single question incorrectly the second time, even though they were certain that their highly vivid memories were accurate. An additional 50 percent of the students could answer only two out of the seven questions correctly, when compared with what they had previously written on the day after the event. Just 7 percent of the students were able to remember the same circumstances that they recorded a year and a half earlier, although even then there were many mistakes in the details of their memories.<sup>37</sup> Six months later, the memories unsurprisingly did not improve, and when the respondents were confronted with the facts from their initial responses, despite being presented with a written record in their own hand, they remained insistent that their current memories were in fact correct. “No one who had given an incorrect account in the interview even pretended that they now recalled what was stated on the original record. . . . As far as we can tell,” the researchers concluded, “the original memories are just gone.”<sup>38</sup> Further research on this type of memory has only served to substantiate these original findings, and it has now become widely agreed that “[flashbulb memories] are distinguished from ordinary memories by their vividness and the confidence with which they are held. There is little evidence that they are reliably different from ordinary autobiographical memories in accuracy, consistency, or longevity.”<sup>39</sup>

It is even possible to introduce a false flashbulb memory, as illustrated by an experiment conducted in the Netherlands. On October 4, 1992, an El-Al cargo plane crashed into an eleven-story apartment building in an Amsterdam suburb shortly after takeoff, resulting in mass casualties. Not surprisingly, the story was widely covered in the Dutch news. Then, ten months later, in August 1993, three Dutch psychologists gave a questionnaire to around two hundred university faculty and students across the country. Among the questions was: “Did you see the television film of the moment the plane hit the apartment building?” Over half of those surveyed (55 percent) responded that they had indeed seen the film. The experiment was repeated with a group of around one hundred law students, and again the majority said that they had indeed seen the film of the accident on television. The only thing is, there was no such film, and indeed, given the lack of

widespread video surveillance and cell phone cameras at this time, “very little critical sense would have made our subjects realize that the implanted information could not possibly be true.”<sup>40</sup> And yet, when subsequently asked about the event, many of the participants remembered vivid details that they believed they had seen in the film. The power of authoritative suggestion from the researchers’ questionnaire led them to believe that they had in fact witnessed the plane’s impact on film, while their repeated imaginations of the event, based on expectations of what must have transpired, became a false memory shared by many in this group of mostly university faculty and graduate students. The study thus demonstrates “that people easily mistake post-event information, either from hearsay or from their own visualization, for first-hand knowledge. This is particularly easy when, as in our studies, the event is of a highly dramatic nature, which almost by necessity evokes strong and detailed visual imagery.”<sup>41</sup>

#### REMEMBERING THE GIST?

If readers may be beginning to despair at the fallibility of human memory, there is, it turns out, some good news. Memory, of course, must have some usefulness or reliability; otherwise, we could not and would not rely on it. Indeed, some persistence and accuracy of memory is essential for human beings to live their daily lives and to have complex interactions with each other and with society as a whole. Most of the time, our memory functions very well to remember the broad outlines of what we have experienced. Thus, despite all its significant limitations, human memory excels at remembering the “gist” of what happened in the past, even as particular details and specific words fall quickly into oblivion. Our recollections are in fact organized in the memory and retrieved on the basis of such “gist information,” a feature that “is adapted to retain information that is most likely to be needed in the environment in which it operates.” This aspect of memory, as we have already noted, indicates that the many forgotten details and alterations of our memories actually “serve an adaptive role.” Our memories have adapted to preserve what is essential, forgetting or changing the rest.<sup>42</sup> In fact, “the ability to remember the gist of what happened is also one of memory’s strengths: we can benefit from an experience even when we do not recall all of its particulars.”<sup>43</sup>

At this level, that of the “gist,” we remember quite a lot: we can recall the general schema of many things that we have done and experienced, even if the details are usually quite mixed up. For instance, if one doesn’t remember exactly what he or she was doing when learning that Kennedy was assassinated or first witnessing the 9/11 attacks on New York City and Washington, DC, one certainly remembers that these things happened and remembers hearing about them. Nevertheless, in identifying this quality of our memories, it is essential to consider just what we might mean when we refer to retention of the “gist” of a particular memory. For some memory scientists, “Memory for the gist . . . occurs when we recall the ‘sense’

of an original text in different words. To remember the gist of a story or a conversation is to be roughly faithful to the argument, the story line, the underlying sequence of ideas.”<sup>44</sup> If this is the standard, then very often our memories in fact fail to retain the gist of an experience, and in reality we can recall no more than the general themes of past conversations or experiences. Of course, if we instead regard memory of these more general patterns to be reflective of the “gist,” then our memories are quite good at preserving the gist.

One of the most important studies demonstrating the limitations of memory for retaining the gist, in this case defined as recalling an original “text” in different words, is based on the congressional testimony of John Dean, Richard Nixon’s White House counsel, in the Watergate proceedings. During the Senate hearings, Dean recalled with great detail his interactions with Nixon, often recounting dozens of conversations with him from his three years of service as if he were citing them verbatim. The senators were often skeptical concerning the precise level of detail that Dean claimed to remember, and they frequently pressed him on the specifics. Nevertheless, Dean maintained that he had an excellent memory, which his reputation seemed to confirm. Indeed, at the time of the hearings, some writers referred to Dean as “the human tape recorder,” so precise were his accounts of these conversations.<sup>45</sup> Within a year of his testimony, however, real tape recordings of their conversations made by Nixon in the Oval Office were released in the course of the investigation: Nixon allowed their release in hopes that their discrepancies with Dean’s testimony would discredit Dean. The release of the tapes has thus made it possible to compare Dean’s detailed recollections of his conversations with Nixon, which he read before the committee from a carefully prepared statement, with recordings of those same conversations. On the basis of these two sets of data, one can determine just how much Dean was actually able to remember and how accurate his memory of these conversations was when he was testifying. The results of this analysis are one of the most remarkable studies in the history of memory science—“John Dean’s Memory: A Case Study,” published by the famous memory researcher Ulric Neisser.

Neisser compared Dean’s testimony with transcripts of two recorded conversations between Dean and Nixon, one on September 15, 1972, and the other on March 21, 1973: these were the only two recordings available for comparison. One should note that these conversations took place only nine months and three months respectively before his Senate testimony began on June 25, 1973. The comparisons with the two transcripts yielded striking results, revealing some remarkable differences between Dean’s memory of the conversations and what actually transpired in the Oval Office. In general, Dean showed a tendency to elevate his own significance in the events as he remembered them, but more importantly, his memories about many things, including some very big things, were simply wrong. Nevertheless, although his recollections were often inaccurate, none of what Dean said was false, since, if it were, he would have been convicted of



perjury, which he was not. On the whole, Neisser's study revealed "that Dean recalls the 'gist' of some conversations and not of others," despite his confidence that his memory is entirely accurate.<sup>46</sup>

Comparison of the first meeting's recording with Dean's recollection "shows that hardly a word of Dean's account is true. Nixon did not say *any* of the things attributed to him here." Neisser concludes about this conversation

that Dean's account of the opening of the September 15 conversation is wrong both as to the words used and their gist. Moreover, cross-examination [from the senators] did not reveal his errors as clearly as one might have hoped. . . . He remembered how he had felt himself and what he had wanted, together with the general state of affairs; he didn't remember what anyone had actually said. His testimony had much truth in it, but not at the level of 'gist.' It was true at a deeper level. Nixon was the kind of man Dean described, he had the knowledge Dean attributed to him, there was a cover-up. Dean remembered all of that; he just didn't recall the actual conversation he was testifying about.

Dean does in fact recall all the topics that were discussed, "but never reproduces, the real gist of anything that was said."<sup>47</sup>

The second meeting, on March 21, was arranged at Dean's request. He was not sure that Nixon fully understood the gravity of their circumstances as they had developed by this point in the coverup, and he wanted to discuss them privately, face-to-face. It was on this occasion that Dean uttered his most famous words, informing Nixon that "we have a cancer within, close to the presidency, that is growing." In this instance, comparison of Dean's testimony with the recording showed that he had "clear recall of the gist of what was said." Yet the greater accuracy of his memory for this meeting required some sharp clarification: one must realize "that the March 21 meeting was less a conversation than the delivery of a well-prepared report," and that for the first hour the meeting "stayed quite close to the script Dean had prepared for it in advance."<sup>48</sup> In this case, then, Dean was effectively remembering for the Senate hearings a report that he had memorized three months prior and had probably continued to rehearse in his mind since this pivotal meeting. When Nixon's chief of staff, Bob Haldeman, later joined Dean and Nixon for the second hour of the meeting, Dean's memory suddenly became much less precise, presumably because he was no longer on script at this point. What is still more peculiar is that Dean barely mentioned anything at all from the second half of this meeting in his testimony. This absence is quite remarkable since in this portion of the conversation, the three men repeatedly discussed raising a million dollars to pay off the blackmail demands of some of the conspirators, a topic that Nixon had already introduced during the first half of the meeting. It is hard to imagine that Dean would have forgotten the president saying such things about paying out such substantial bribes, and it turns out he did not: he just assigned them to the wrong day, including them in his description of a meeting that took place the week before on March 13. Nevertheless, although this topic, the million



dollars in blackmail money, was discussed in the March 21 meeting, it did not come up at all during the March 13 meeting, when Dean remembered having this conversation. Dean remembered the discussion of raising the money to pay the blackmailers; he simply misremembered the context in which it occurred.<sup>49</sup>

So what went wrong? Why did Dean's memory alter the account of what happened in the way that it did? Likewise, why did he get some things more or less right? In the first place, as already noted, many of the transformations in Dean's recollections serve to elevate his importance in the affair and to signal the president's personal approval of him. I think it is safe to say that he is not the only one whose memory frequently operates in this manner. All of us tend to remember our past in a fashion that makes us look good and important. Yet Dean's memories also seem to reflect the influence of certain memory scripts. That is, Dean was remembering his meetings with the president by filling in the gaps using a general memory pattern of what one would expect when meeting with the president in the Oval Office. Such mental schemata are stored and regularly employed by the mind for understanding and remembering many common events. Accordingly, in many instances, Dean's testimony relies on his memory of the sort of things that are typically said when one is in the Oval Office with the president.<sup>50</sup> He has reconstructed the memory from bits and pieces, in the manner that Bartlett identified, filling in gaps in an "imaginative reconstruction, or construction, built out of the relation of our attitude towards a whole active mass of organised past reactions or experience."<sup>51</sup> As for the parts that he remembered with greater clarity, Neisser observes that these were the result of repetition by Dean himself as well as by others during the meetings, both before and after the meetings. These repetitions, rather than the events of a single episode, were the things that he was best able to recall the "gist" of. Yet in the end, even if Dean was not able to remember the gist of his conversations with Nixon, Neisser emphasizes that he was in fact telling the truth about what happened. As he writes, "John Dean did not misrepresent this theme [i.e., Nixon's corruption] in his testimony; he just dramatized it. In memory experiments, subjects often recall the gist of a sentence but express it in different words. Dean's consistency was deeper; he recalled the theme of a whole series of conversations and expressed it in different events."<sup>52</sup> In the broader sense of the "gist," then, which we suggested above, it would seem that Dean was able to accurately remember the gist of what happened, even if he could not remember the gist of the particular words that either he or Nixon actually said.

What can this study of John Dean tell us more generally about how human memory works? Well, here we have a highly educated and intelligent individual, whose career had trained him to have a keen memory: his position, as White House counsel, demanded that he have a good memory for both the law and all the workings of a presidential administration. In the Senate hearings, he was charged with remembering several crucial and momentous personal conversations with the president—an auspicious occasion—at a distance of only three to nine months,

having time to prepare a carefully recollected statement that he knew would be delivered before the senators. And yet, his memory failed on many levels to recall what happened and what was said, even as he remembered the broader themes of his interactions with the president as well as things he had presumably memorized in advance for their conversations. We find in Dean a fine-tuned memory working relatively well to recall the broader themes from past experience, while failing to remember even the gist of what was said and also misattributing certain conversations to incorrect circumstances. All things considered, this is not bad at all, and it seems to be about as much as we can expect of human memory without the aid of written materials, even if many of us—mistakenly—believe that our memories and those of others are more capable than this.

Accordingly, if such were the limits of Dean's memory in these conditions, it bears asking, what should we expect of more ordinary people, whose training and profession have not developed their memories to the same extent as Dean? Are we able to remember the gist of a conversation that we had two years ago, or even three months ago, with a colleague, a student, a health professional? Possibly. How about the general themes of the conversation? More likely. And what about a word-for-word account of what was discussed? Not a chance. Even if some people may believe they have such capacities, they do not. What about something that someone else told you about a conversation that a third person had some time ago? Would this reproduce what was said word for word? Certainly not. Let us go even further still: "what about a report written by someone who had heard about the conversation from someone who was friends with a man whose brother's wife had a cousin who happened to be there—a report written, say, several decades after the fact? Is it likely to record the exact words? In fact, is it likely to remember precisely even the gist? Or the topics?"<sup>53</sup> At best, in such cases we would be lucky if the gist of the topics discussed maintained some basic level of accuracy. More than that seems extremely improbable in the absence of written transmission.

It is of course possible to train the memory to accomplish remarkable feats, such as remembering a sequence of a thousand random numbers or the order of ten shuffled decks of cards. It is true that some people, thirty-six to be precise, have trained their memory and developed tricks to make such feats possible, at least for the short term.<sup>54</sup> Their memories are not supernatural, just trained: much in the same way that a body builder exercises regularly to bulk up, so these athletes of the mind regularly train to develop their memories. Anyone who committed to such training could theoretically attain the same capabilities. Yet one must note that the exploits of these memory champions, who indeed engage in competitions, involve short-term memorization of a very different sort from the long-term verbatim recall that would be necessary to remember conversations or lectures word for word or events from daily life with detailed accuracy. It is true, however, that there are individuals who, unlike these memory masters, are simply born with the ability to remember just about everything they experience in excruciating detail.

Yet this capacity is extremely rare—it is literally preternatural, and thus it cannot be taken as evidence that Muhammad’s followers would have similarly been able to remember the text of the Qur’an word for word after hearing it from Muhammad. Moreover, this ability tends to be much more of a curse than a blessing for those extremely few individuals who possess it. As noted above, our forgetfulness is an adaptive quality that makes our memories functionally useful in the day-to-day affairs of our life. Without the ability to forget most of what we experience, it turns out to be very difficult to get through the day. As Schacter notes, “if all events were registered in elaborate detail” in our memory, “the result would be a potentially overwhelming clutter of useless details.”<sup>55</sup>

Such was the case for the famous mnemonist Solomon Shereshevski, whom the Russian neuropsychologist Alexander Luria studied over three decades beginning in the 1920s. Shereshevski could recall lists of words, numbers, even nonsense syllables exactly still more than a decade after hearing them spoken once. As Luria concluded of his subject, “Shereshevski formed and retained highly detailed memories of virtually everything that happened to him—both the important and the trivial. Yet he was unable to function at an abstract level because he was inundated with unimportant details of his experiences—details that are best denied entry to the system in the first place.”<sup>56</sup> Shereshevski’s unique condition enabled him to remember almost everything that he experienced, yet this ability was debilitating: “The main problem for ‘S’ [Shereshevski] seemed to be that new information (such as idle talk from other people) set off an uncontrollable train of distracting memory associations for him. Eventually, ‘S’ could not even hold a conversation, let alone function as a journalist,” his original profession.<sup>57</sup> Shereshevski possessed a truly supernatural memory, with abilities unknown in other human beings, capabilities that eventually made him dysfunctional, incapable of even making conversation. Accordingly, this singularly exceptional individual cannot validate a belief that Muhammad’s followers could remember the Qur’an verbatim for decades after hearing it from him. Even in the entirely improbable case that one among Muhammad’s followers may have had such a memory, Shereshevski’s example shows that such a person would be effectively useless for the rest of the community, unable to even have a conversation with other members of the group.

There is another recently identified memory condition known as hyperthymesia or highly superior autobiographical memory, which was only identified in 2006. Individuals with hyperthymesia are able to remember dates and events from their lives with extraordinary accuracy, reaching back over decades. It is an extremely rare condition, which has only been identified in around sixty or so individuals in the world. But these individuals show extraordinary recall of personal experiences: often if you ask them what happened on a certain day, they can tell you what they had for lunch on that day as well as significant personal experiences or public events with incredible accuracy. What they remember and what they do not is seemingly random, but in almost all cases the things that are remembered are

very personal, rather than shared, experiences. For instance, in the first case that was discovered, the individual, after being interviewed by two people for hours the day before, could not remember when asked what her interviewers had been wearing.<sup>58</sup> Nevertheless, again, while it seems highly implausible to assume that such an individual was among Muhammad's entourage, even if by some remarkable chance there were, this still could not guarantee the words of the Qur'an.

Moreover, and more importantly, although hyperthymesiacs frequently can remember their personal past with stunning detail and exactitude, they are just as often likely to remember things incorrectly; indeed, studies have shown that they are no less likely to do so than individuals who do not have this mnemonic ability. They are equally susceptible to all the influences and mechanisms that regularly distort or introduce false memories. One proposed explanation for this phenomenon is that once other memories of an event are introduced, they can easily replace the individual hyperthymesiatic's memory of a particular event. What they tend to remember in great detail are things that only they would know or the dates of certain major events, memories that are not prone to divergent accounts or interpretations. Nor, as it turns out, are they particularly good at remembering texts and poetry in particular.<sup>59</sup> Accordingly, it seems unreasonable to postulate that this extremely rare memory condition, with all its attendant weaknesses, could possibly somehow guarantee that the Qur'an preserves verbatim accounts of what Muhammad taught.

#### MEMORY, MUHAMMAD'S TEACHINGS, AND THE QUR'AN

Let us then consider what the well-documented limitations of human memory should mean for how we think about the early history of the Qur'an. The Qur'an is generally believed by both Muslims and most modern scholars alike to be an exact and faithful transcript of the words that Muhammad taught. As F. E. Peters maintains, for instance, "our copy of the Qur'an is, in fact, what Muhammad taught, and is expressed in his own words." After Muhammad's death and before their collection under 'Uthmān, these words were transmitted by men who "were convinced from the outset . . . that what they were hearing and noting 'on scraps of leather, bone and in their hearts' were not the teachings of a man but the *ipsis-sima verba Dei* and so they would have been scrupulously careful in preserving the actual wording." Accordingly, Peters insists that one must recognize that "the Qur'an is convincingly the words of Muhammad."<sup>60</sup> So also Rudi Paret insists that "We have no reason to assume that even a single verse in the entire Qur'an does not come from Muhammad himself."<sup>61</sup> Elsewhere Paret avers that the Qur'an "contains nothing but authentic sayings of the Prophet. The individual proclamations appear to have come down to us in an unfailingly verbatim transmission."<sup>62</sup> Angelika Neuwirth similarly maintains that the Qur'an must be understood as a

“transcript” of Muhammad’s “prophetic communications.”<sup>63</sup> Such pronouncements regarding the fidelity of the Qur’anic text to what Muhammad taught are not at all uncommon, and ultimately they would all appear to harken back to Nöldeke, who long ago proclaimed that “the Qur’an contains only authentic material.”<sup>64</sup> Nevertheless, in light of what we have just seen about the limitations of human memory, is there any reason to imagine that such judgments could possibly be warranted, despite their prevalence, in critical scholarship on the Qur’an and early Islam?

If we assume Muhammad’s early followers to have been ordinary human beings without mnemonic superpowers, then we must accept that their memories of the words Muhammad spoke to them do not preserve “what Muhammad taught, and is expressed in his own words.” Such accuracy is altogether impossible, no matter how many times it may be asserted in the scholarly literature, unless someone were taking dictation in the moment. Within hours of hearing him speak, the listeners would already have forgotten most of the specific words he said, as the Ebbinghaus forgetting curve, a pillar of memory science, clearly indicates. When they later sought to retrieve memories of what they had heard, they would not have simply called up a faithful transcript from the archives of their memories. Instead, such recall involves the imaginative reconstruction and recomposition of the memory anew, based on some fragments that managed to make it into storage. But these fragments leave large gaps and must be supplemented by information drawn from “the relation of our attitude towards a whole active mass of organised past reactions or experience.”<sup>65</sup> Perhaps a few months or years after hearing Muhammad say something, one of his companions could recall a few scraps of the gist of what he said, but most of the memory would consist of supplemental filler provided from the relevant experiences amassed by this individual. The same holds no less true of Muhammad himself, whose ability to remember words that he had spoken months or years in the past would be similarly limited and prone to considerable omission and alteration. Here Neisser’s observation that our memories work with fragments in the same way that paleontologists work with bones is particularly apt: given a few bits to work with, our memories have to reconstruct the whole animal, as it were.<sup>66</sup> Accordingly, what we have is not Muhammad’s words, but a recomposition of them inspired by some gist memories that, like the paleontologist’s bone fragments, have been highly reconstructed and expanded based on expected patterns in order to complete the whole.

The fact that some of Muhammad’s earliest followers may have been eyewitnesses (or earwitnesses) to what they remember does not in any way validate the accuracy of their reminiscence. As we have also seen, eyewitness memories are highly fallible, no less so than any other kind of memory. Perhaps the fact that there would have been multiple eyewitnesses to confirm one another’s memories can buy some reassurance? Not at all, and actually the opposite seems to be true. Memory science has learned that eyewitness memories are more often than not

corrupted by influence from the accounts of others. Indeed, scientific study of “group memory” has demonstrated that the collaborative memory of several individuals working together generally amounts to less than the sum of its parts. For instance, given a dozen individuals who witnessed a particular event, if one interviews them individually, one will garner more information and greater accuracy than if the group is consulted as a whole. So, sharing memories among individuals seems to degrade, rather than strengthen them, a point that leads to the topics of the next chapter: oral transmission and collective memory.<sup>67</sup>

Therefore, we should hardly expect Muhammad’s followers to have remembered his *ipsissima verba*. Instead, in the absence of a written record, the best we might hope for is something along the lines of John Dean’s capacity: the recall of the general patterns of thought that Muhammad expressed, along with a number of his key phrases and other things that were frequently repeated, perhaps with the occasional recollection of the gist of what he might have said, restated using different words. In effect, then, Muhammad’s followers, and Muhammad himself for that matter, would be recomposing his words anew each time they remembered them, on the basis of bits and pieces of gist memory that may have survived. His companions would have to supplement these fragments heavily by adding new compositions fashioned on the basis of general memories of Muhammad and the broad patterns of his teachings that they could recall, as well as their present circumstances. This does not mean these individuals were lying or engaged in some sort of conspiracy to hide the true nature of Islamic origins, as again some scholars of early Islam like to insist is the only possible alternative to the absolute fidelity and credibility of the traditional accounts.<sup>68</sup> Rather, like John Dean, they were telling the truth as best they could, based on what their memories could provide them, notwithstanding the errors and imaginations of their recollections.<sup>69</sup> One must admit, of course, that it is certainly not impossible that some parts of the Qur’an are in fact rather close to something that Muhammad might have said to his earliest followers. Yet, as in the case of the words of Jesus, these rare instances would indeed be great exceptions and would need to be justified with careful arguments in each instance.

Once we move beyond the original generation of eyewitness, such memories would only become more removed from what actually happened or was said, having been recomposed multiple times with each recollection and each transmission to another individual. Only their commitment to writing can obviate these realities of human memory, which is no doubt why many scholars will insist—without much evidence—that Muhammad’s revelations must have been written soon after he spoke them and under his supervision. Otherwise, once human memory intervenes, we are no longer dealing with Muhammad’s teachings in the words that he spoke them, but with multiple recompositions of his teachings under a range of individual, communal, and external influences as they passed through time and from individual to individual. This is all the more so once we recognize, as

Nicolai Sinai again reminds us, “that during the age of the conquests the majority of converts were not sufficiently preoccupied with the interpretation of the Quran in community’s order for the prophetic understanding of it to be fully preserved. As a result, later Muslims needed to rediscover and hermeneutically reinvent their scripture.”<sup>70</sup> Indeed, once we factor in the process of oral transmission, the topic to which we next turn, the teachings ascribed to Muhammad become even more remote from what he may have actually said. At this stage, the memories of his words were being shaped by the nature of the community that he founded as it continued to develop its collective and individual needs, as well as the new contexts in which the memories are transmitted.